and where was it the most available? This really was a question of great importance, since, in the central parts of Essex, not more than 18 inches of rain fell, while upon the highlands of Oxfordshire, running on to the Cotteswold Hills, the fall was 26 inches. It had been proved, by experiments made by M. Arago, that one-third of the fall is conveyed by rivers to the sea, one-third is lost by evaporation, and the remainder went to the sustentation of animal and vegetable life, or was absorbed by the different porous strata. The portion with which he proposed to deal was that which descended into the earth, and was given out day by day for the sustentation of the little streamlets which trickled through every valley, forming rivulets and rivers; and with the supplies of water which were said to be underneath the metropolis, and available for the supply of the 2,200,000 persons by whom it was inhabited. This was a false assertion, and he would prove it. The average depth now to the water in such wells in London was 60 feet; in 1875, it would be 120 feet down. Could we, then, look to this source for supply? He declared that there was not at the present time a single Artesian well, which could be properly so called, within three miles of St. Paul's. An Artesan well was one which flowed over naturally; they were so called from Artesium, the Roman name for the province of Artois, in France, where such wells were first formed. The London clay having been pierced in so many places, the porous beds below, which had to be supplied from the places where they outcropped, became less able to supply them all, and year by year the water grew less. The fountains in Trafalgar-square were an imposition; so far were they from being Artesian wells, that the water did not rise to within 80 feet of the surface, and it had to be pumped up by a costly steam-engine, which was more expensive than it would be to supply the fountains from the Chelsea Waterworks, and the same water was pumped up over and over again, times innumerable,—but who knew that? The brewers were now boring one against the other: to talk of getting a supply of water for London by Artesian wells was ridiculous. The expense of them, too, was enormous: one near Swindon, which was 320 feet deep, cost 1,000*l*.

The Dean then examined the various areas of land which supply the Coln, the Brent, and the Thames, and came to the conclusion that the latter river, near Henley, was the best source we could look to. It was a dead level the whole distance, and it was proposed to make a canal, which, having a natural fall of 3 feet, and in its whole course no engineering difficulties to render an inch of tunnelling or embanking necessary, would bring the water into a valley north of Paddington, which was 105 feet above the high-water mark. This would be high enough to supply two-thirds of the metropolis by the force of gravitation; and a portion being forced to a reservoir on Primrose-hill, the whole metropolis, even if it were twice its present size, which God forbid, might have a full and cheap supply in every house, both poor and rich.

After a statement from Mr. Clutterbuck, confirmatory of the correctness of the sections, Mr. Tite said the Dean had spoken warmly of those who had taunted him with being a mere theorist. Ignorance was always presumptuous, and no class of men found this out so fully as [illegible]. Every man, woman, and child was an architect by nature, or thought so, and always knew his (the speaker's) business better than himself. As to the subject of the evening. He had not been aware before that an Artesian well was one that was constantly overflowing: he thought the term simply distinguished water obtained by boring. But of this there could be no doubt, that what were called Artesian wells required frequent deepening, and were a source of constant expense. He sincerely hoped that the Government would take up the supply question. It ought to be looked upon as a national question; for a large city like this, containing so immense a population, ought not to be left dependent for the supply of so important and necessary an article as water upon private companies or individual speculators. He would not express any opinion as to the means by which a sufficient supply of water should be obtained, but he believed that a public discussion of this nature would be attended with very beneficial results. The object was to obtain the greatest amount of good with the least private injury. The best science of the country ought to be called in to aid the inquiry.

M. Robert Stephenson, M.P., had listened with gratification to Dr. Buckland's remarks, and though he did not feel himself in a position to express any precise opinion on the subject, he would say he had some doubts as to the desirability of obtaining the supply in the manner pointed out. The usefulness of a river so greatly depends on the quantity of water flowing through it, that it seemed doubtful if we could abstract so much from the Thames without interfering with the navigation. This should be inquired into. If we could take it from the tributary streams at high level, abstract it from what went to form floods, would it not be better? This was a view that had occupied his mind for some time. He quite concurred with the Dean in the belief that a proper supply for London could not be had from Artesian wells.

Mr. Homersham considered that the chalk held larger quantities of water than the Dean asserted was the case, and that when the fissures containing it were reached, the other wells were not necessarily lowered, but water was forthcoming which otherwise would run to waste in the sea.

Mr. Horn and Mr. Reid, both owners of Artesian wells; Mr. Stanford, M.P.; Mr. Dickenson; and Mr. Foggo, made each a few observations; and Mr. T. Piper said that the point to be remembered, as it seemed to him, was,—that, of the water which fell as rain, and which was alone available, one-third goes to the river, one-third to the ground, and one-third to supply waste by evaporation, &c.; and that the one-third which goes to the river is more easily got at than that which goes to the ground.

THE OLD CHURCH SPIRE AT BIRMINGHAM has been declared, by a majority of architects and surveyors, to be decidedly unsafe and liable to *fall* down if not *taken* down. It is to be hoped, however, that whether the latter or the former, such an ancient landmark as St. Martin's spire will be at once restored; for in a place like Birmingham, where all is new and without associations,—every ancient landmark passing away one after another,—so prominent a monument of the olden time can ill be spared. The question has been started whether the church should not be entirely rebuilt; but however identical in form and position, it may be a second question, subtle and profound as that of the identity of Sir John Cutler's silk stockings darned with worsted till no silk remained,—whether such a rebuilding would constitute a *restoration* of the ancient fabric of St. Martin's.

PROPOSED OPERATIVES' PROVIDENT INSTITUTION.

BUILDING SOCIETIES.

BESIDES the classes you have addressed in urging the establishment of the proposed institution, there is another, the members of which are awakened to a sense of its necessity—I mean the artificers themselves. You have already shown it to be alike the duty and interest of the employers to assist in carrying out the benevolent measure, but I think its startling need cannot be too strongly dwelt upon.

Few were prepared for the disclosures which were made to the Parliamentary Committee on the "Friendly Societies Bill." This report reveals a state of things lamentable to contemplate, and each page of the evidence which accompanies it shows the necessity of the timely interference of the masters in such a cause, more forcibly than any comment upon it.

Friendly societies are divided into two classes—the enrolled and unenrolled: one with, the other without, the protection of the law. In order to be entitled to enrolment, the tables are required to be certified by an actuary, and if they are at all reasonable, the certificate is given,—it being acknowledged that, of necessity, their safety cannot be guaranteed, as localities materially affect their accuracy, and little difference is made with regard to them. But it appears that even this slight restraint is cast off, for an eminent actuary stated that he cannot certify more than one society's tables in ten, which are sent him for that purpose, and that the nine form themselves into illegal associations. In the evidence the reader is startled by the frequent recurrence of the term "young blood," and discovers that most of the clubs are indebted to it for existence. The subscriptions of young entering members are appropriated to pay the claims of the old ones, who can be regarded in no other character than as decoy-ducks, and the system which gives rise to such practices as a perpetual fraud of the old on the young. It there appears that 14,000 of these institutions have been enrolled; that a greater number have been formed and not enrolled; that very many have been broken up, and that a vast majority of those still remaining in existence are insolvent.

It appears that most of the town clubs are formed by publicans, to extend their business. Advantage is taken of the working man's ignorance of statistics, and the tables are made such as to draw customers; indeed, it is a branch of the trade, and there being opposition, a rivalry exists to underbid each other.

In these societies members are exposed not only to unsound tables and acts of injustice, but in the unenrolled ones to direct fraud, and must suffer without having any remedy. Thus officers may rob with impunity, yet the law cannot touch them. We read of a secretary coolly "keeping" 50*l*., and walking about the streets laughing at his dupes; of another who embezzled 5,000*l*., and although tried and pronounced by the judge to be morally guilty, yet he could neither be convicted nor deprived of his booty.

Most disastrous consequences have resulted from the spread of these societies. Ministers, in visiting the dwellings of the poor, and noting the prevailing misery, having inquired the cause of such distress, learned that it arose in many instances from the breaking in of clubs; and a clergyman who examined the inmates of the Birmingham workhouse, found that of the 152 who had been driven to claim the pauper's crust, 79 had belonged to sick clubs, which had all failed at the time their assistance was needed. A member of the committee truly said, "There had been a very general confiscation of the property of the poor."

No doubt there are clubs respectably conducted, but, like railways, until they are generally reformed the poor man will blindly speculate, in selecting one worthy of his confidence, and there are serious evils connected with the best conducted which ought never to exist in institutions of the kind; I mean the usual practice of meeting on Saturday evenings in a *public-house*. In order to gain a good the member is subjected to such bad influences as will lead to the abuse of it when